WHAT IS CLAIMED IS:

1. A method for controlling a quiescent point of a linear interferometric sensor system comprising the steps of:

illuminating an interferometric sensor with a light source;

filtering light reflected by the interferometric sensor with an adjustable device, the adjustable device having a pass band, the pass band having a center frequency;

converting the filtered light to an electrical signal;

generating a feedback signal based on a steady state component of the electrical signal and a set point; and

using the feedback signal to control the adjustable device such that a quiescent point of the sensor system is maintained at a desired location corresponding to the set point.

2. The method of Claim 1, wherein the interferometric sensor comprises a Fabry-Perot cavity.

3. The method of Claim 1, wherein the interferometric sensor comprises a Fizeau cavity.

4. The method of Claim 1, wherein the interferometric sensor is a fiber optic sensor.

5. The method of Claim 1, wherein the interferometric sensor is a Michelson interferometer.

6. The method of Claim 1, wherein the interferometric sensor is a Mach-Zehnder interferometer.

7. The method of Claim 1, wherein the adjustable device is an electrically tunable optical filter.

8. The method of Claim 1, further comprising the step of filtering the electrical signal with a low pass filter to isolate the steady state component of the electrical signal.

9. The method of Claim 1, further comprising the step of calculating a temperature based in part on the feedback signal.

10. The method of Claim 1, wherein a broadband light source is used to illuminate the interferometric sensor.

11. The method of Claim 1, wherein the interferometric sensor system is a self-calibrating interferometric/intensity-based (SCIIB) system in which light with a coherence length less than a cavity length of the interferometric sensor is used to illuminate the interferometric sensor, light reflected by the interferometric sensor is split into a reference channel and a signal channel and the filtering step is performed only for light in the signal channel, the light in the reference channel and the filtered light in the signal channel are converted into corresponding electrical signals, and a ratio of the corresponding electrical signals is formed to cancel effects common to both channels.

12. A linear interferometric sensor system comprising:

a light source;

an interferometric sensor;

a coupler connected to the light source and the interferometric sensor;

an adjustable device connected to the coupler to receive light reflected by the interferometric sensor, the adjustable device having a pass band, the adjustable device being configured to filter out light reflected by the interferometric sensor at

frequencies outside of the pass band and pass light reflected by the interferometric sensor within the pass band;

a first photodetector connected to receive light passed by the adjustable device, the first photodetector being configured to convert the light passed by the adjustable device into a first electrical signal;

a feedback circuit connected to receive the first electrical signal from the first photodetector, the feedback circuit being configured to output a feedback signal to control the adjustable device such that a quiescent point of the sensor system remains at a desired location, the feedback signal being based on a steady state component of the electrical signal and a set point corresponding to the desired location.

13. The system of Claim 12, wherein the interferometric sensor comprises a Fabry-Perot cavity.

14. The system of Claim 12, wherein the interferometric sensor comprises a Fizeau cavity.

15. The system of Claim 12, wherein the interferometric sensor is a fiber optic sensor.

16. The system of Claim 12, wherein the interferometric sensor is a Michelson interferometer.

17. The system of Claim 12, wherein the interferometric sensor is a Mach-Zehnder interferometer.

18. The system of Claim 12, wherein the interferometric sensor is a Sagnac interferometer.

19. The system of Claim 12, wherein the adjustable device is an electrically tunable optical filter.

20. The system of Claim 12, wherein the feedback circuit comprises a low pass filter connected to receive the first electrical signal, the feedback circuit being configured to isolate the steady state component of the electrical signal.

21. The system of Claim 20, wherein the feedback circuit further comprises an amplifier, the amplifier being connected to an output of the low pass filter and to a set point voltage, the amplifier being configured to output the feedback signal, the feedback signal being proportional to a difference between the set point and the output of the low pass filter.

22. The system of Claim 12, further comprising:

a beam splitter connected between the coupler and the adjustable device, the beam splitter being configured to split the light reflected by the interferometric sensor into a reference channel and a sensor channel, the sensor channel being connected to the first photodetector;

a second photodetector connected to convert light from the reference channel into a second electrical signal; and

a divider connected to receive the first electrical signal and the second electrical signal and output a ratio of the first and second electrical signals.